WHAT IS CLAIMED IS:

1. A frequency modulation apparatus comprising:

a segmentalizing device for dividing, into a plurality of segments in units of pixel, a main scan line on an image bearing member scanned by a laser beam;

an auxiliary clock calculation device for employing a reference clock period, and variable-magnification coefficients corresponding to the respective segments, to calculate auxiliary clock periods for the respective segments;

an image clock generating device for generating image clocks for the respective segments based on an initial predesignated period value and the auxiliary clock periods for the respective segments;

a reference value storing device for storing a reference value;

a detecting device for detecting a difference between the reference value and an actual laser irradiation location; and

a correcting device for correcting a shift in the laser irradiation location in accordance with the detection results obtained by the detecting device.

2. A frequency modulation apparatus according to claim 1, wherein the detecting device includes

a scan distance measuring device for

reading a reference image, and measuring a distance between target images that correspond to the segment in the reference image that has been read, and

an error ratio calculating device for calculating an error ratio of the reference value to the obtained distance between the target images; and

wherein the correcting device includes

a variable-magnification coefficient changing device for, in accordance with the obtained error ratio, changing a variable-magnification coefficient of the corresponding segment.

3. A frequency modulation apparatus according to claim 1, further comprising:

an initial period changing device for changing the initial period value.

4. An image forming apparatus wherein the frequency modulation apparatus according to claim 1 is provided.

5. A frequency modulation apparatus according to claim 1, wherein the detecting device separates the segments into blocks of continuous segments, and detects a shift between a laser irradiation position based on a value predesignated for each of the blocks and an actual laser irradiation position; and

wherein, in accordance with the detection results obtained by the detecting device, the correcting device controls a pixel period of the segment, and corrects the shift of the laser irradiation position.

6. A frequency modulation apparatus according to claim 5, wherein segment(s) fewer than the segments constituting each of the blocks are defined as segment(s) to be adjusted; and

wherein the correcting device controls the pixel period for the segment to be adjusted, and corrects an error for the laser irradiation position.

7. A frequency modulation apparatus according to claim 6, wherein the segment to be adjusted is the last segment for each of the blocks of the segments.

8. A frequency modulation apparatus according to claim 6, wherein, for each of the blocks, the same value is set for the segment(s) to be adjusted.

9. A frequency modulation apparatus according to claim 6, wherein an inflection point along an f-θ lens characteristic curve is employed to separate the segments into the blocks.

10. A frequency modulation apparatus according to claim 1, wherein the laser beam is formed of plural laser beams; and

wherein the reference value storing device includes

a variable-magnification coefficient value generating device for holding a reference value used as a variable-magnification coefficient for one of the plural laser beams, and for employing the reference value and a correction coefficient corresponding to another laser beam to generate a value that is used as a variable-magnification coefficient for said another laser beam.

11. A frequency modulation apparatus according to claim 10, wherein the correction coefficient for said another laser beam is held in advance.

12. A frequency modulation apparatus according to claim 10, further comprising:

a storing device for storing a plurality of correction coefficients; and

a selecting device for selecting, from among the correction coefficients stored in the storing device, a correction coefficient that corresponds to said another laser beam.

13. A frequency modulation apparatus according to claim 10, wherein a plurality of reference values are held in the holding device, and from among the reference values, a reference value is selected as a variable-magnification coefficient for said another laser beam.

14. A frequency modulation apparatus according to claim 10, wherein the variable-magnification coefficient value generating device generates a value used as a variable-magnification coefficient for said another laser beam by using one or more of a method for adding, to the reference value, a predetermined value corresponding to the correction coefficient, or for subtracting the predetermined value from the reference value, a method for multiplying the reference value by a predetermined value corresponding to the correction coefficient, a method for shifting the reference value to the left or right in a main scan direction by a distance equivalent to a predetermined value that corresponds to the correction coefficient, and a method whereby magnification adjustment in consonance with the correction coefficient is performed for the reference value in the direction leading toward a correction position, centering on the middle of the optical system.

15. A frequency modulation method, for a frequency modulation apparatus that includes a segmentalizing device for dividing, into a plurality of segments in units of pixel, a main scan line on an image bearing member scanned by a laser beam, an auxiliary clock calculation device for employing a reference clock period, and variable-magnification coefficients corresponding to the respective segments, to calculate auxiliary clock periods for the respective segments, and an image clock generating device for generating image clocks for the respective segments based on an initial predesignated period value and the auxiliary clock periods for the respective segments, comprising:

a scan distance measuring step of reading a reference image, and measuring a distance between target images that correspond to the segment in the reference image that has been read;

an error ratio calculating step of calculating an error ratio of a predesignated reference value to the obtained distance between the target images; and

a variable-magnification coefficient changing step of, in accordance with the obtained error ratio, changing a variable-magnification coefficient of corresponding segment.